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10/713,616

11/13/2003

Vinod Sharma

139-033U

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04/01/2008

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EXAMINER

WONG, KIN C

ART UNIT

PAPER NUMBER

2627

MAIL DATE

DELIVERY MODE

04/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/713,616 | Applicant(s) SHARMA ET AL. | |
| | Examiner K. Wong | Art Unit 2627 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

This is a response to amendment filed on 1/11/08.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yan (6025988) in view of Shier (5488518).

Regarding claim 23: Yan discloses an interconnecting circuit (as depicted in figures 2 and 15 of Yan and associated descriptions for details) for a voice-coil actuator with multiple sliders (as depicted in figure 15 of Yan and see associated descriptions for details) and corresponding micro-actuators (element 24 in figure 2 and associated descriptions for details) in a disk drive, including:

a main flex circuit (element 29 site in figure 15) with interconnections for a read-write preamplifier (element 44 in figure 2), a ribbon cable socket (is inherent within the reference), a micro-actuator source control bundle (as depicted in figure 9 of Yan and see associated descriptions for details) shared by each of the micro-actuators, and a bridge coupling region (col. 7, lines 11-25 of Yan);

a plurality of bridge flex circuits each including interconnected bridge flex circuit coupling sites, slider contact areas, and test probe areas (as depicted in figure 2 and see associated descriptions for details);

a cleavage line (element 40 in figure 2 and see associated descriptions for details) included in each of the plurality of bridge flex circuits and providing for a separation and removal of test probe areas after a manufacturing test for continuity (col. 5, lines 29-42 of Yan); and

a reflow solder connection of the main flex circuit and all the plurality of bridge flex circuits at the bridge coupling region and bridge flex circuit coupling sites (in col. 7, lines 17-34 where Yan describes connections of the flex circuit).

Although Yan suggests the interconnection for the read-write preamplifier (col. 5, lines 12-24 of Yan) with a single chip, however, Yan is silent on the capability specifies of the interconnection with a single preamplifier or chip for the multiple of heads or sliders. Shier is relied on for the teachings a single preamplifier or chip with capability for a multiple of sliders (as shown in figure 1 and see col. 3, lines 38-42 of Shier).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the preamplifier of Yan with the preamplifier for the multiple sliders as taught by Shier. The rationale is as follows: one of ordinary skill in the art would have been motivated to provide a reduction of connection to the sliders as suggested in col. 3, lines 26-37 of Shier.

Furthermore, the single chip shows no unexpected result to occur. Thus, it is a merely a design choice in a routine experimentation, specifically, when there no

unexpected result seems to occur. See *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965); *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950); *In re Ruff*, 256 F. 2d 590, 118 USPQ 340 (CCPA 1958); and; *In re Scott*, 323 F. 2d 1016, 139 USPQ 297 (CCPA 1963).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Yan (6025988).

Regarding claim 24: Yan discloses a flex circuit for a disk drive voice-coil actuator (as depicted in figure 1 of Yan and see associated descriptions for details), including:

a ribbon cable connector site (as depicted in element 29 site on figure 15 of Yan and see associated descriptions for details) for providing a source control bundle for positioning control of a plurality of read-write heads and shared by each of a plurality of micro-actuators included in a voice-coil actuator for a disk drive (col. 7, lines 11-16 of Yan);

a bridge coupling region providing connections for each micro-actuator between the source control bundle on a main flex circuit and a microactuator control bundle on a

bridge flex circuit for each of the read-write heads (as depicted in figure 15 of Yan especially in the region of element 96, and, see associated descriptions for details).

Response to Arguments

Applicant's arguments filed 1/11/08 have been fully considered but they are not persuasive.

Regarding to remarks file on 1/11/08 for claim 23: applicant and applicant's representative assert that Yan lacks the main flex circuit and only discloses a bridge flex circuit. Applicant and applicant's representative further assert that Yan does not disclose the interconnected bridge flex circuit coupling the voice coil actuator. As arguendo, applicant and applicant's representative are directed to figure 15 and col. 8, lines 28-59 of Yan for analysis with figure 3A of the instant application. As for sake of analysis, the element 96 site depicts where the main flex circuit lay in order to make the interconnecting bridge flex circuit to become operational by reflowing the solder into the pads of the bridge flex circuit and the main flex circuit (or completing the connection between the head/arm electronic and the controlling inputs). Additionally, the site as on the voice coil actuator (or coupled to the voice coil actuator) as depicted in figure 15 of Yan. Thus, the comparison of the elements of figure 15 of Yan with the figure 3A of the instant application that which debunks the applicant's element by element refutation on page 4 of the remarks. Therefore, Yan does disclose the main flex circuit on the voice

coil actuator. Additionally, the main flex circuit that coupling to the voice coil actuator is not claimed and/or positively recited.

Further, applicant and applicant's representative assert that the combination of Yan and Shier is improper. Yan does not teach the pre-amp location at the main flex circuit site. Applicant and applicant's representative are directed to col. 8, lines 40-41 and col. 8, lines 51-59 of Yan where Yan describes the various features of the configurations that which includes the having of the pre-amp that which located at the main flex circuit site. Thus, the combination of Yan and Shier is proper.

Regarding to remarks file on 8/23/07 for claim 24: applicant asserts that Yan fails to teach a micro-actuator source control bundle shared by each of the micro-actuators or lacks the main flex circuit. Applicant is directed to figure 15 of Yan and especially in the input region of the element 96 (see the associated descriptions for details) and the discussion for Yan, above. Thus, the rejection of the claims stands.

Regarding to remarks on page 7 (filed on 1/11/08): the combination of Yan and Takaishi is not clear because the reference to Takaishi is not used or cited.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (571) 272-7566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. Wong/
Primary Examiner
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kw
26 Mar 08

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